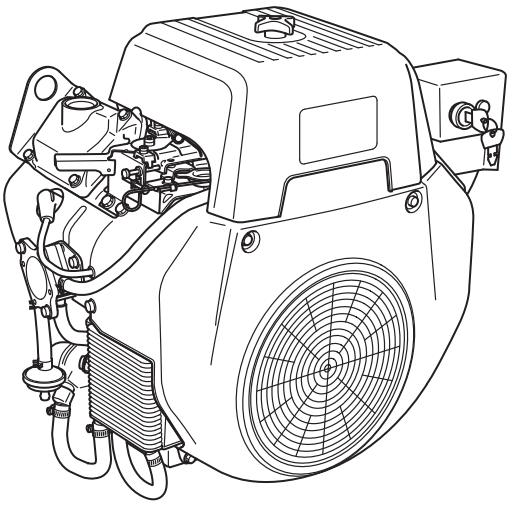
SUBARU

Industrial Power Products

EH72-2D



SERVICE INFORMATION

PREFACE

This manual covers the service information, trouble shooting procedures and so on of EH72-2 engine.
Careful observance of the instructions given herein will result in better, safer and faster service work.
For more detailed instructions of disassembling and reassembling procedures, please refer to the service manual for EH63, 64, 65 and 72.

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1. SPECIFICATIONS

Model		EH72-2D
Type		Air-Cooled, 4-Stroke, V-Twin Cylinder, Horizontal P.T.O. shaft, OHV Gasoline Engine
Number of Cylinders - Bore × Stroke mm (in.)		2 - 84 × 65 (3.31 × 2.56)
Displacement ml (cu.in.)		720 (43.9)
Compression Ratio		8.7
Continuous Output kW(HP)/r.p.m.		14.2 (19.0) / 3600
Maximum Output kW(HP)/r.p.m.		Gross : 18.7 (25.0) / 3600
Maximum Torque	**N·m / r.p.m.** **(kgf·m / r.p.m.)** **(ft·lb. / r.p.m.)**	51.0 / 2800 (5.2 / 2800) (37.6 / 2800)
Direction of Rotation		Counterclockwise as viewed from the P.T.O. shaft side
Cooling System		Forced air cooling
Valve Arrangement		Overhead Valve (OHV)
Lubrication		Full pressure type with oil Cooler
Lubricant		Automobile engine oil SAE #20, #30 or 10W-30; Class SE or higher
Capacity of Lubricant L (U.S. gal.)		1.55 (0.41)
Carburetor		2- Barrel side draft type
Fuel		Automotive unleaded gasoline
Fuel Feed System		Diaphragm Fuel pump (Pulse type)
Ignition System		Flywheel Magneto (Solid state)
Spark Plug		BPR5ES(NGK) or BPR4EY(NGK)
Charging Capacity V - A		12 - 15 or 12 - 30 (Option)
Starting System		Electric Starter
Governor System		Centrifugal Flyweight type
Air cleaner		Double Element type
Dry Weight kg (lb.)	**with out muffler and control box**	46 (101.3)
	with STD muffler and control box	51.5 (113.4)
Dimensions (L × W × H) mm (in.)	**with out muffler and control box**	317 × 477 × 480 (12.5 × 18.8 × 18.9)
	with STD muffler and control box	464 × 499 × 480 (18.3 × 19.6 × 18.9)

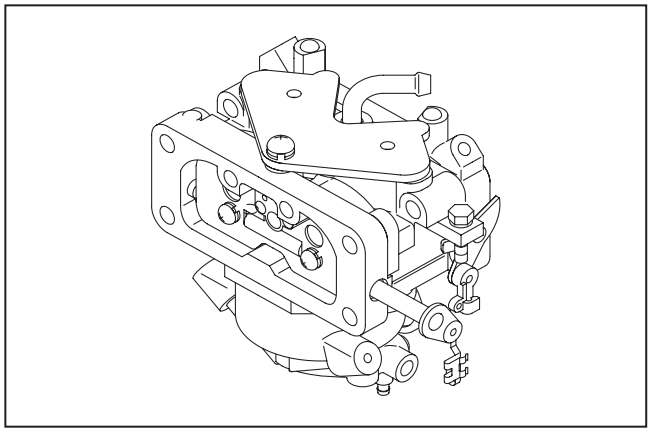
*** Specifications are subject to change without notice.**

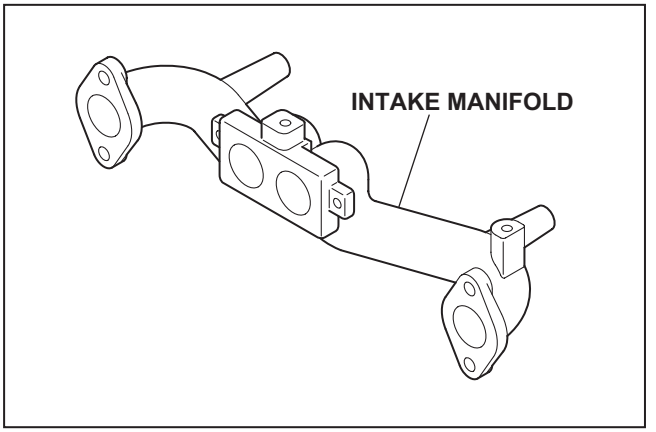
2. FEATURES

HIGH OUTPUT, TORQUE AND DURABILITY

720cc displacement which is the largest among 25 horsepower classed engines, produces high torque from the low speed range. High durability with less than 1% horsepower drop after 300 hours of full-throttle operation.

Furthermore, the new generation of EH72 (EH72-2) has achieved higher output by adopting 2- Barrel Side draft carburetor system, which increases intake airflow and optimally distributes air-fuel to each cylinder, as well as optimizing camshaft profile and increasing compression ratio.





HEAVY DUTY CONSTRUCTON

Reliable structure with pressure lubrication, cast iron cylinder sleeve and dual air cleaner element. Also, heavy duty ball bearing installed on P.T.O. side.

SUPERIOR OIL CONTROL

In addition to the excellent oil control by 3 pieces oil rings, adoption of valve stem seal and high cooling capability reduce oil consumption. This enables longer oil maintenance interval together with largest lubrication oil capacity in this class.

3. DISASSEMBLY AND REASSEMBLY

3-1 PREPARATIONS AND SUGGESTIONS

(1) When disassembling the engine, memorize the locations of individual parts so that they can be reassembled correctly. If you are uncertain of identifying some parts, it is suggested that tags be attached to them.

(2) Have boxes ready to keep disassembled parts by group.

(3) To prevent losing and misplacing, temporarily assemble each group of disassembled parts.

(4) Carefully handle disassembled parts, and clean them with washing oil if necessary.

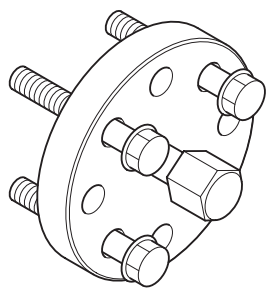
(5) Use the correct tools in the correct way.

(6) When disconnecting electric wirings, be sure to hold and disconnect the connector housing.

3-2 SPECIAL TOOLS

No Special Tool is needed for disassembling and reassembling the engine.

For pulling off the flywheel, universal type puller being popular in the market place as shown in the illustration is needed.

Description	Parts number
Flywheel puller for pulling off the flywheel  **Flywheel puller with bolt**	228-95001-17

3-3 DISASSEMBLY PROCEDURES (DIFFERENCE)

Step	Parts to remove	Remarks and procedures	Parts Fasteners
8	Chock control lever and link	(1) Disconnect the choke rod holder and remove the choke control rod. (See Fig. 3-1) (2) Remove the choke knob.	

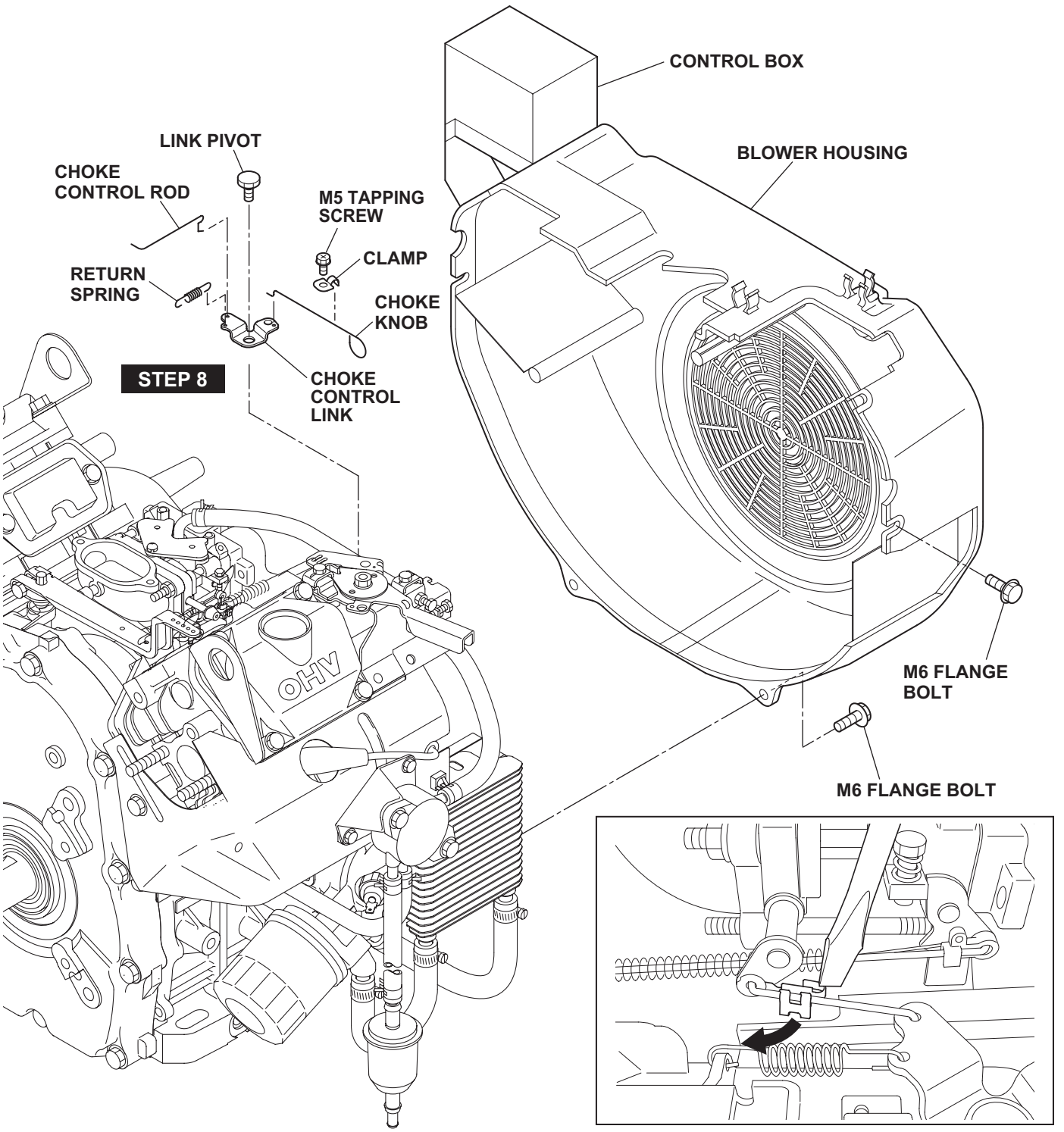


Fig. 3-1

Step	Parts to remove	Remarks and procedures	Parts Fasteners
9	Carburetor	(1) At first remove fuel pipe. (See Fig.3-2) (2) Remove the governor rod spring from rod holder. (3) Pick up the rod holder and remove the governor rod. (See Fig.3-3) (4) Remove the nuts, adapter and Carburetor from the intake manifold. (See Fig.3-4)	M6 Flange nut : 4pcs.

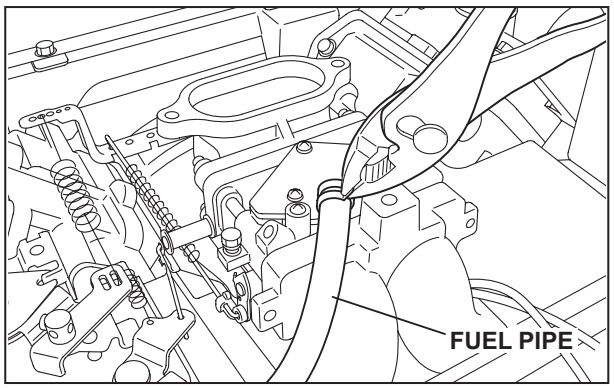


Fig. 3-2

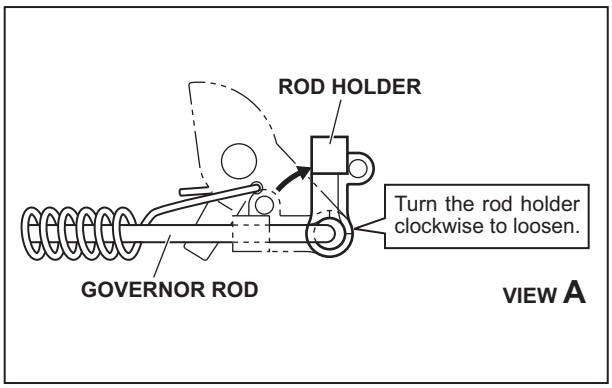


Fig. 3-3

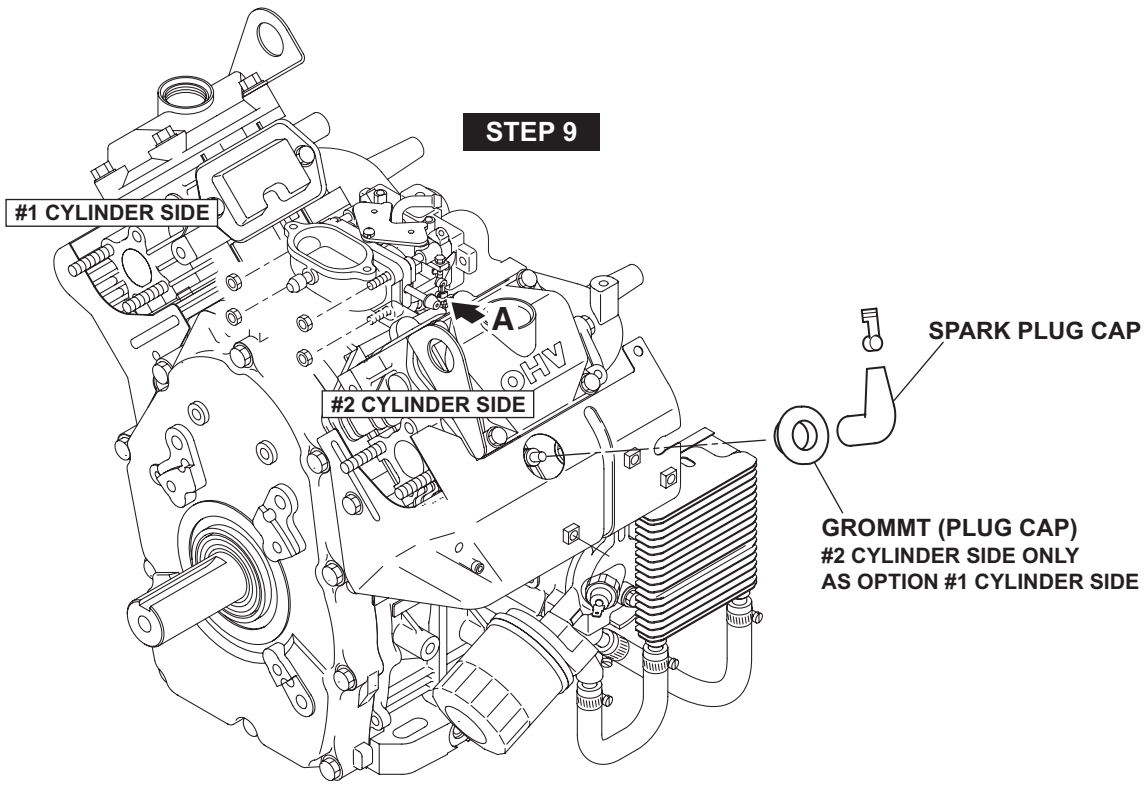


Fig. 3-4

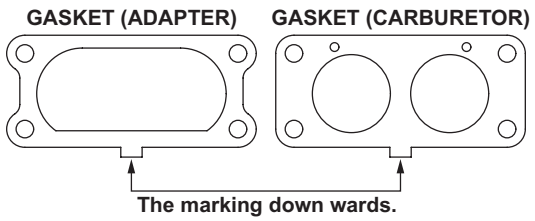
3-4 REASSEMBLY PROCEDURES (DIFFERENCE)

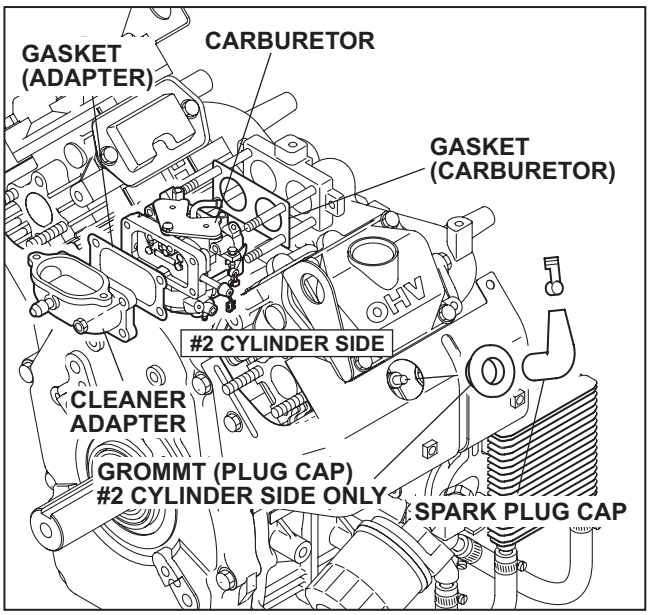
22) CARBURETOR

Set gasket onto intake manifold and install carburetor.

M6 Flange nut : 4pcs.

Tightening torque
16.6 - 18.6 N•m (170 - 190 kgf•cm) (12.3 - 13.7 ft•lb.)

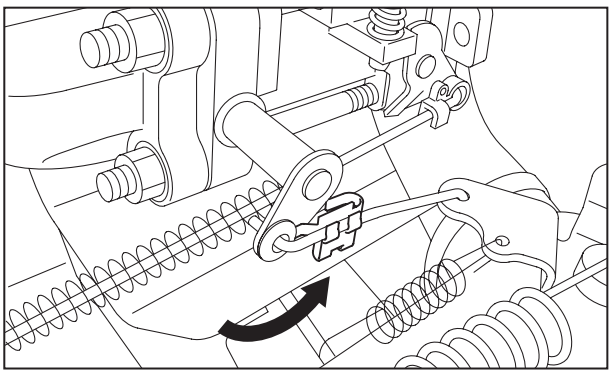


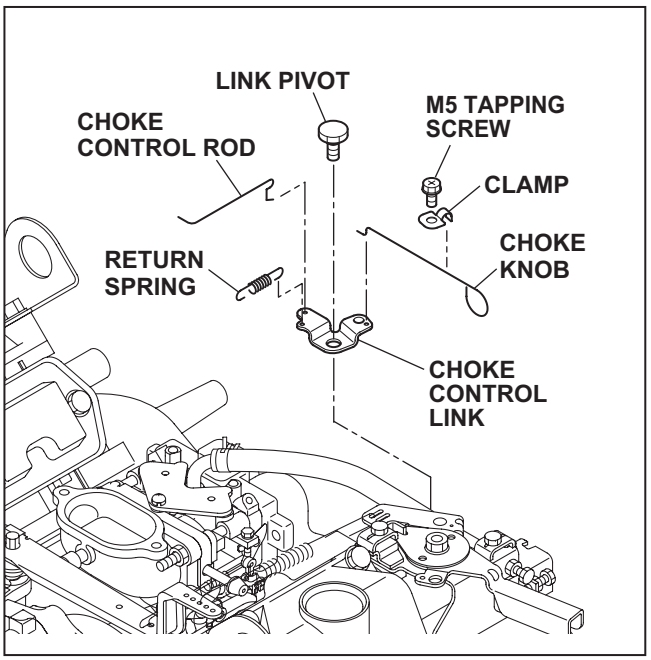


23) CHOKE CONTROL

Attach chock control link between carburetor chock lever and chock control lever.

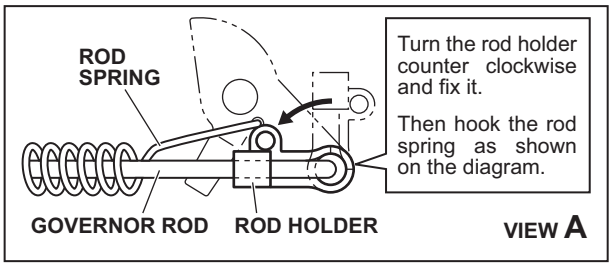
Attach governor spring between governor lever and speed control lever.

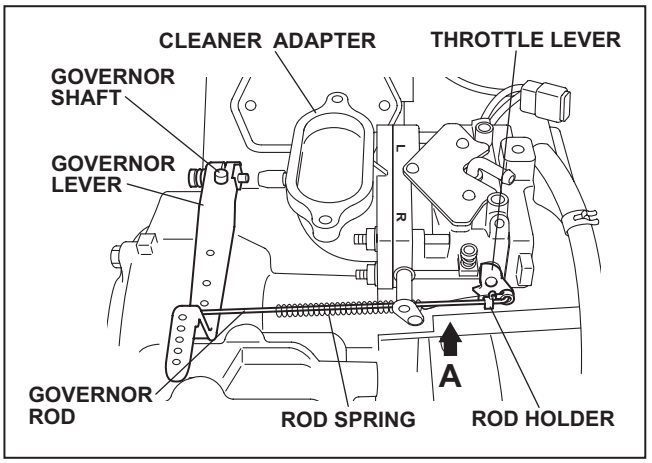




24) GOVERNOR LEVER

Attach governor rod and rod spring between governor lever and carburetor throttle lever, and insert the governor lever to governor lever shaft. Tighten locking bolt temporarily.


ROD SPRING
Turn the rod holder counter clockwise and fix it.
Then hook the rod spring as shown on the diagram.
GOVERNOR ROD
ROD HOLDER
VIEW A

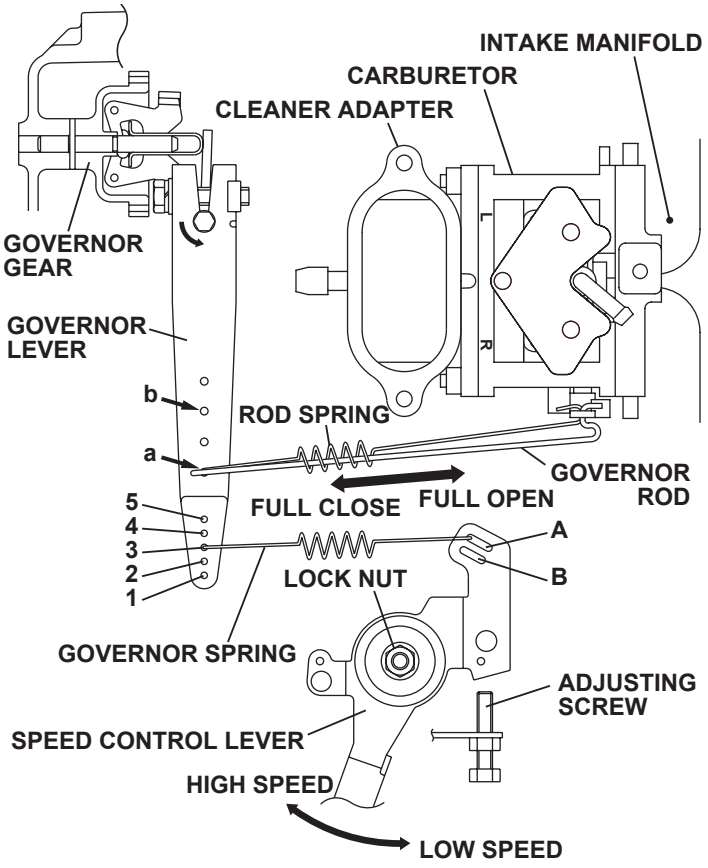


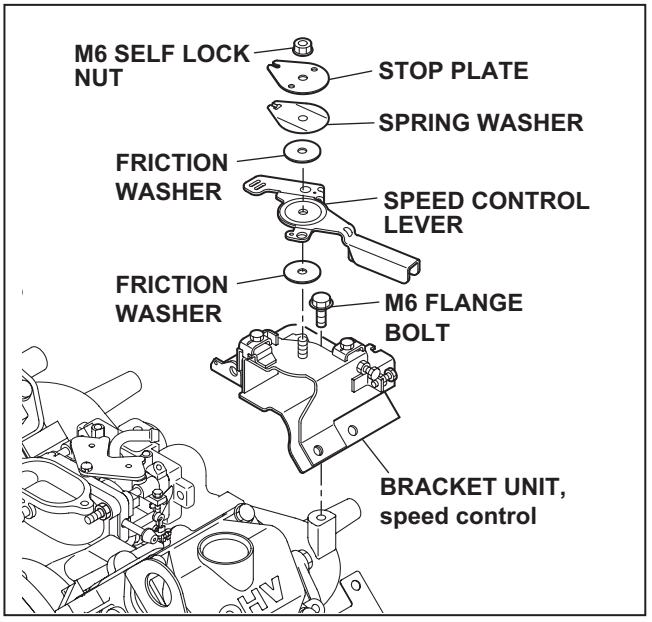
25) SPEED CONTROL LEVER

(1) Install speed control bracket onto intake manifold.

(2) Attach return spring, spacer, friction washer, wing nut, etc. to speed control lever as shown in the ilustration.

(3) Connect governor spring to governor lever and speed control lever.





Fitting location of governor rod and governor spring

	50 Hz	60 Hz (STD)
COLOR	Silver	Gold
POSITION	A-3(a)	

29) AIR CLEANER and BREATHER PIPE

(1) Connect breather pipe to air cleaner base.

(2) Set gasket onto cleaner adapter and install cleaner base.

(3) Fit air cleaner base onto carburetor.

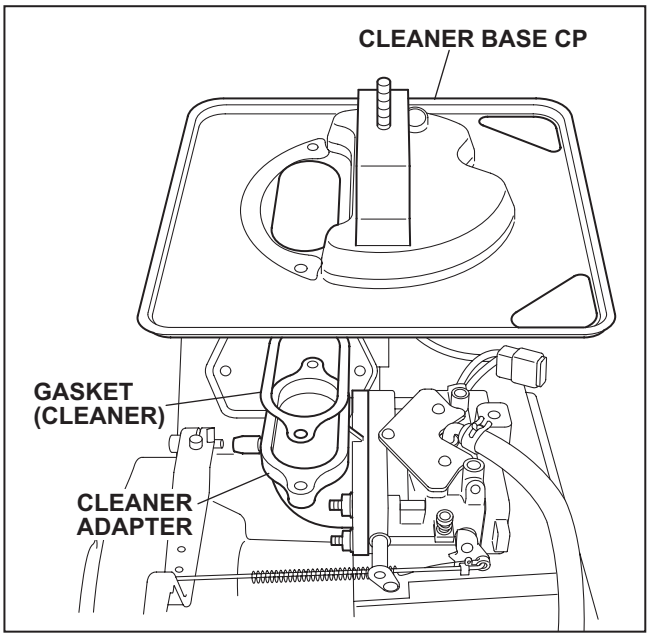
M6 x 12 Flange bolt : 3 pcs.

Tightening torque
6.8 - 8.8 N•m (70 - 90 kgf•cm) (5.0 - 6.5 ft•lb.)

(4) Connect breather pipe to #1 cylinder head.

(5) Set air cleaner element along with urethane foam onto base.

(6) Install air cleaner cover with knob.



3-5 BREAK-IN OPERATION

An engine that has been completely overhauled by being fitted with a new piston, rings, valves and connecting rod should be thoroughly BREAK-IN before being put back into service. Good bearing surfaces and running clearances between the various parts can only be established by operating the engine under reduced speed and loads for a short period of time.

While the engine is being tested, check for oil leaks.

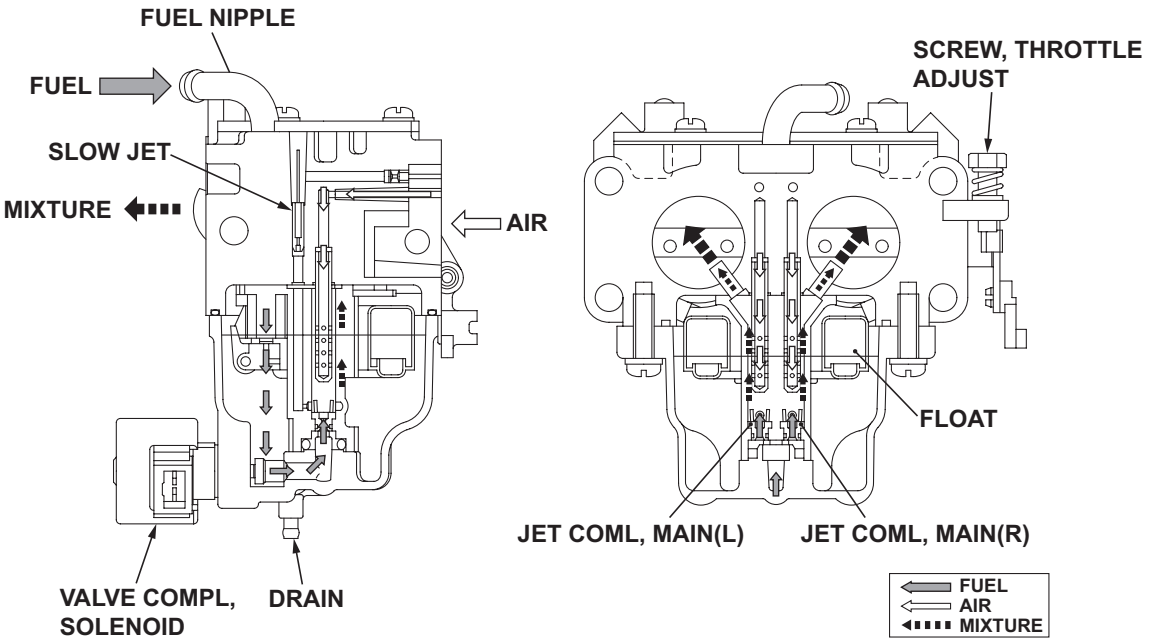
Make final carburetor adjustment and regulate the engine operating speed.

STEP	EH72-2	Engine speed (rpm)	Time (minute)
1	No Load	2500	10
2		3000	10
3		3600	10
4	7.1kW (9.5HP)	3600	30
5	14.2kW (19.0HP)	3600	30

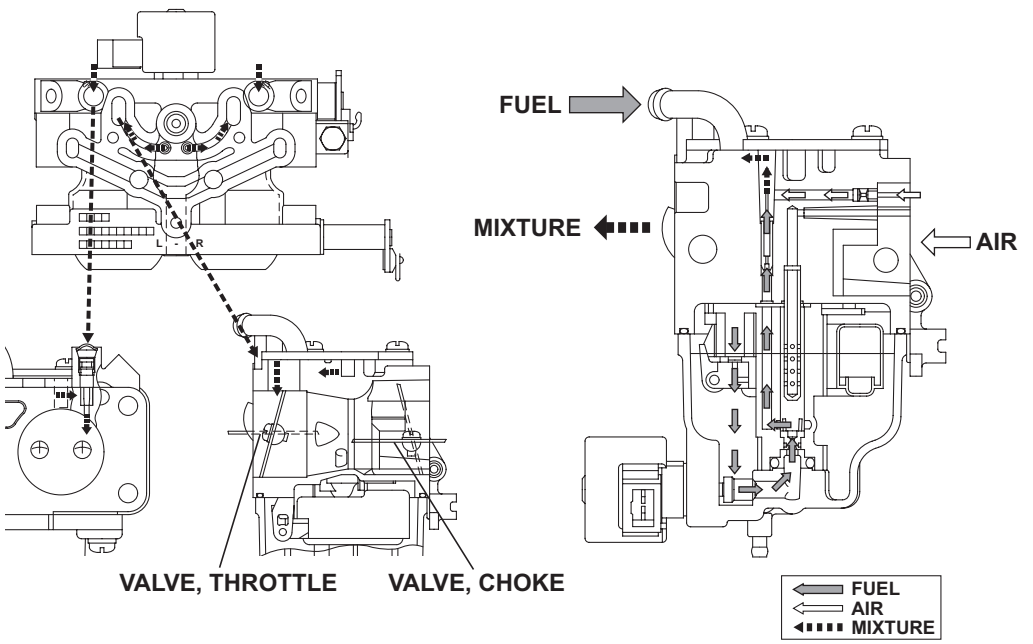
4-1 CARBURETOR

OPERATION AND FUNCTION
[EH72-2]

Main System



Slow System



FLOAT SYSTEM

The float system is consists of a float and a needle valve, and maintains a constant fuel level during engine operation.

The fuel flows from the fuel tank into the float chamber through needle valve.

When the fuel rises to a specific level, the float rises, and when its buoyancy and fuel pressure are balanced, the needle valve closes to shut off the fuel, thereby keeping the fuel at the predetermined level.

Air vent hole of float chamber is provided around the carburetor air hone and the fuel vapor is sucked into the combustion chamber. This closed system has unti-dust feature.

PILOT SYSTEM

The pilot system feeds the fuel to the engine during idling and low-speed operation.

The fuel is fed through the main jet to the pilot jet, where it is metered, and mixed with the air metered by the pilot air jet.

The fuel-air mixture is fed to the engine through the pilot outlet and the by-pass.

At idling speed, the fuel is mainly fed from the pilot outlet.

MAIN SYSTEM

The main system feeds the fuel to the engine at medium-and high-speed operation.

The fuel is metered by the main jet and fed to the main nozzle. The air metered by the main air jet is mixed with the fuel through the emulsion tube, and the mixture is atomized out of the main bore. It is mixed again with the air taken through the air cleaner into an optimum fuel-air mixture, which is supplied to the engine.

CHOKE

The choke is used for easy start when engine is cold.

When the starter is operated with a choke valve fully closed, the negative pressure applied to the main nozzle increases and draws much fuel accordingly; thus easily start up the engine.

FUEL CUT VALVE

Fuel cut valve, operated with starter key switch, is equipped with main system of carburetor for preventing engine running on and after burning.

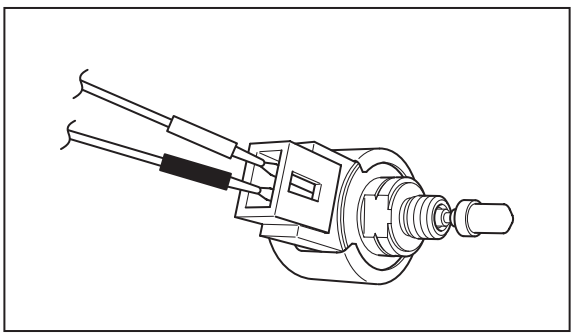
When the key switch is on, the valve is activated and the plunger is pulled in to open the main jet.

When the key switch is off, the power source to the valve is off. The plunger is pushed out by the return spring and stop the fuel flow of main jet.

SOLENOID (for Fuel Cut Off of Carburetor)

- Measure the resistance between the two terminals. (Ω ±10% when 20˚C)

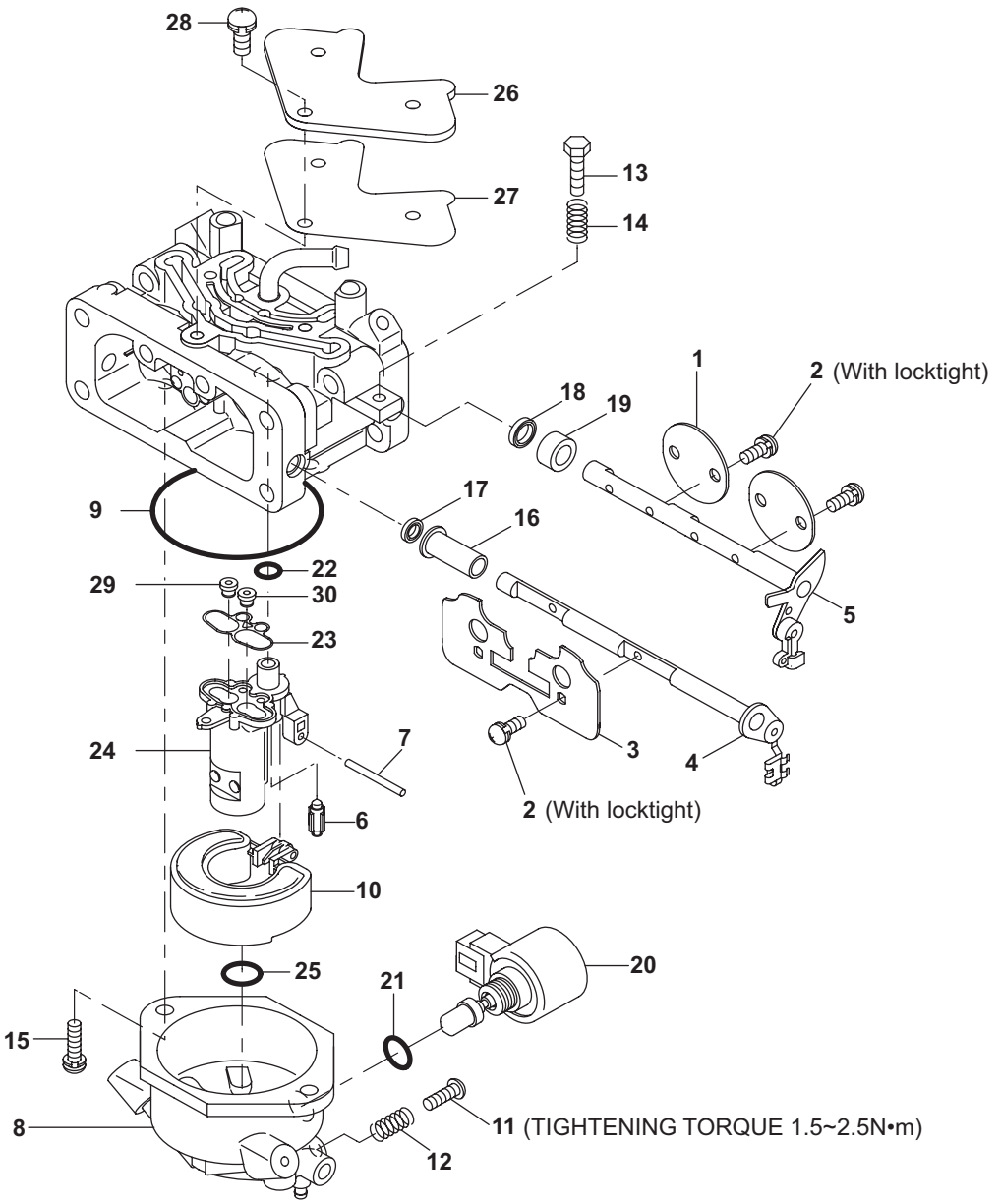
Resistance
32 Ω



- Check the operation of the solenoid independently.
  Check operation at the terminals. (Applied voltage : 9V)
  Faulty operation → Replace the solenoid

- As the solenoid is a constant pull-in type when the engine is running, If the battery's power is low, it may not work when starting the engine because all the available electricity is occupied by the starting motor.
  → Charge or replace the battery.

4-2 COMPORNENT PARTS



1.VALVE,THROTTLE
2.SCREW SET(VALVE)
3.VALVE, CHOKE
4.SHAFT ASSY,CHOKE
5.SHAFT COMPL,THROTTLE
6.VALVE, FLOAT
7.PIN, FLOAT
8.CHAMBER ASSY, FLOAT
9.GASKET, FLOAT CHAMBER
10.FLOAT
11.SCREW, DRAIN
12.SPRING, DRAIN
13.SCREW, THROTTLE ADJUST
14.SPRING(ADJUST SCREW)
15.SCREW
16.COLLAR, CHOKE
17.SEAL,CHOKE
18.SEAL,THROTTLE
19.COLLAR, THROTTLE
20.VALVE COMPL,SOLENOID
21.GASKET(MATERIAL : ALUMINUM)
22.O-RING
23.GASKET, SPACER
24.SPACER, CARB
25.O-RING
26.COVER, SLOW PASSAGE
27.GASKET, SLOW PASSAGE
28.SCREW
29.JET COML,MAIN(L)(#132)
30.JET COML,MAIN(R)(#133)

ISSUE EMD-EU6947

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FUJI HEAVY INDUSTRIES LTD.
INDUSTRIAL PRODUCTS COMPANY
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PRINTED IN JAPAN
February 2010